

CLAIMS

What is claimed is:

1. A method for accessing an instance of a recreatable object in a shorter-duration memory based on a reference located in a longer-duration memory, wherein the shorter-duration memory is associated with a call, the method comprising the steps of:
 - locating, within the shorter-duration memory, a context structure associated with the call;
 - locating an XREF pointers array based on data cached within the context structure;
 - determining whether the XREF pointers array includes a pointer associated with said reference; and
 - if the XREF pointers array includes a pointer associated with said reference, then following said pointer to locate said instance within said shorter-duration memory.
2. The method of Claim 1 wherein the step of locating an XREF pointers array based on data cached within the context structure comprises the steps of:
 - determining a hash code associated with a memory page in which the XREF is located;
 - using at least a portion of the hash code as an index to locate an array entry within an array stored within the context structure; and
 - if said array entry contains a pointer, then following said pointer stored in said array entry to locate said XREF pointers array.

1 3. The method of Claim 2 wherein:
2 the array is a power-of-two array; and
3 the portion of said hash code that is used as said index includes a particular number of
4 bits of said hash code.

1 4. The method of Claim 1 wherein:
2 the XREF pointers array does not include a pointer associated with said reference; and
3 the method further comprises the steps of
4 creating said instance by activating said recreatable object; and
5 storing a pointer to said instance in said XREF pointers array.

1 5. The method of Claim 2 wherein:
2 if said array entry does not contain a pointer, then creating said instance by activating
3 said recreatable object; and
4 storing a pointer to said instance in said array entry.

1 6. A method for accessing an instance of a recreatable object in shorter-duration memory
2 based on a reference located in a longer-duration memory, wherein the shorter-
3 duration memory is associated with a call, the method comprising the steps of:
4 when a class is activated, generating, within said shorter-duration memory, a class
5 object associated with the class;
6 storing, within said class object, data for locating instances of recreatable objects
7 associated with said class;

8 to dereference said reference, performing the steps of
9 determining that said reference is associated with said class; and
10 using said data within said class object to locate said instance of said
11 recreatable object.

1 7. The method of Claim 6 wherein the step of storing, within said class object, data for
2 locating instances is performed by storing, within said class object, a pointer to an
3 XREF pointers array.

1 8. The method of Claim 7 wherein the step of using said data within object to locate said
2 instance includes the steps of:
3 determining whether the XREF pointers array includes a pointer associated with said
4 reference;
5 if the XREF pointers array includes a pointer associated with said reference, then
6 following said pointer to locate said instance within said shorter-duration
7 memory.

1 9. The method of Claim 8 wherein:
2 the XREF pointers array does not include a pointer associated with said reference; and
3 the method further comprises the steps of
4 creating said instance by activating said recreatable object; and
5 storing a pointer to said instance in said XREF pointers array.

1 10. A computer-readable medium carrying instructions for accessing an instance of a
2 recreatable object in a shorter-duration memory based on a reference located in a
3 longer-duration memory, wherein the shorter-duration memory is associated with a
4 call, the computer-readable medium comprising instructions for performing the steps
5 of:
6 locating, within the shorter-duration memory, a context structure associated with the
7 call;
8 locating an XREF pointers array based on data cached within the context structure;
9 determining whether the XREF pointers array includes a pointer associated with said
10 reference; and
11 if the XREF pointers array includes a pointer associated with said reference, then
12 following said pointer to locate said instance within said shorter-duration
13 memory.

1 11. The computer-readable medium of Claim 10 wherein the step of locating an XREF
2 pointers array based on data cached within the context structure comprises the steps
3 of:
4 determining a hash code associated with a memory page in which the XREF is
5 located;
6 using at least a portion of the hash code as an index to locate an array entry within an
7 array stored within the context structure; and
8 if said array entry contains a pointer, then following said pointer stored in said array
9 entry to locate said XREF pointers array.

1 12. The computer-readable medium of Claim 11 wherein:
2 the array is a power-of-two array; and
3 the portion of said hash code that is used as said index includes a particular number of
4 bits of said hash code.

1 13. The computer-readable medium of Claim 10 wherein:
2 the XREF pointers array does not include a pointer associated with said reference; and
3 the computer-readable medium further comprises instructions for performing the steps
4 of
5 creating said instance by activating said recreatable object; and
6 storing a pointer to said instance in said XREF pointers array.

1 14. The computer-readable medium of Claim 11 further comprising instructions for
2 performing the steps of:
3 if said array entry does not contain a pointer, then creating said instance by activating
4 said recreatable object; and
5 storing a pointer to said instance in said array entry.

1 15. A computer-readable medium carrying instructions for accessing an instance of a
2 recreatable object in shorter-duration memory based on a reference located in a
3 longer-duration memory, wherein the shorter-duration memory is associated with a
4 call, the computer-readable medium comprising instructions for performing the steps
5 of:

6 when a class is activated, generating, within said shorter-duration memory, a class
7 object associated with the class;
8 storing, within said class object, data for locating instances of recreatable objects
9 associated with said class;
10 to dereference said reference, performing the steps of
11 determining that said reference is associated with said class; and
12 using said data within said class object to locate said instance of said
13 recreatable object.

1 16. The computer-readable medium of Claim 15 wherein the step of storing, within said
2 class object, data for locating instances is performed by storing, within said class
3 object, a pointer to an XREF pointers array.

1 17. The computer-readable medium of Claim 16 wherein the step of using said data
2 within object to locate said instance includes the steps of:
3 determining whether the XREF pointers array includes a pointer associated with said
4 reference;
5 if the XREF pointers array includes a pointer associated with said reference, then
6 following said pointer to locate said instance within said shorter-duration
7 memory.

1 18. The computer-readable medium of Claim 17 wherein:
2 the XREF pointers array does not include a pointer associated with said reference; and

3 the computer-readable medium further comprises instructions for performing the steps
4 of
5 creating said instance by activating said recreatable object; and
6 storing a pointer to said instance in said XREF pointers array.